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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,296	07/22/2004	Junichi Adachi	042515	9190

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/502,296	ADACHI ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/04.7/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 16 recites the limitation "the anti-cracking layers" in claim 12, which depends on claim 1. There is insufficient antecedent basis for this limitation in the claim since claim 1 only recites one anti-cracking layer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiozaki (US 5,193,020).

Regarding claims 1, 4, Shiozaki teaches an optical compensation plate in Fig. 1 shown on the next page, comprising an optical compensation layer 12, wherein an adhesive agent 13 is laminated directly on at least one surface of the optical compensation layer 12 (column 2, lines 64-68).

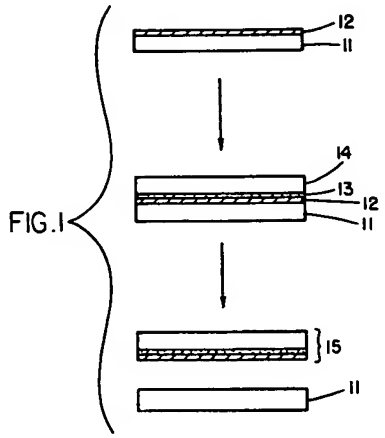

FIG.1

Shiozaki teaches that the adhesive agent is of an optical grade epoxy resin (column 27, lines 18-22), which is curable, thermosetting and forms an anti-cracking layer as defined by Applicant's specification (original claim 4).

Regarding claim 19-20, Shiozaki teaches in Fig 2, a liquid crystal display panel comprising a liquid crystal cell 23 and the optical compensation plate 22 (column 3, lines 3-4), used in a liquid crystal display (column 1, lines 5-10).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 12-13, 16, 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki as applied to claims 1, 4, 19-20 above.

Regarding claims 12-13, 16, Shiozaki teaches an optical component wherein the optical compensation plate comprises an anti-cracking adhesive layer 13 laminated directly on at least one surface of the optical compensation layer 12 (column 2, lines 64-68), as described above. Shiozaki fails to teach that a polarizing plate is formed comprising a polarizer, a transparent protective layer, and the optical compensation plate, wherein the optical compensation plate is configured by laminating anti-cracking layers on both surfaces of the optical compensation layer, so that the optical compensation plate and the transparent protective layer are directly adhered to each other by the anti-cracking layer in the optical compensation plate, and wherein the polarizer and the optical compensation plate are laminated together via the transparent protective layer, so that one of the anti-cracking layers and the polarizer are laminated together via the transparent protective layer.

However, Shiozaki teaches that a transparent protective layer may be used for the purpose of providing surface protection of the compensating layer, and that the compensator may be used in combined form with a polarizing film (column 27, lines 40-48), integrated together into an optical element (column 27, lines 6-11), for the purpose of forming a polarizing plate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have configured the optical compensation plate by laminating the anti-cracking adhesive layers on both sides of the optical compensation layer so that the optical compensation plate and the transparent protective layer are directly adhered to each other by the anti-cracking adhesive layer in the optical

component, in order to provide surface protection to the optical compensation plate; and to have laminated the polarizer and the optical compensation plate together via the transparent protective layer, so that one of the anti-cracking layers and the polarizer are laminated together via the transparent protective layer, in order to provide a polarizing plate comprising the optical compensation plate, as taught by Shiozaki.

Regarding claims 22-23, Shiozaki teaches in Fig 2, a liquid crystal display panel comprising a liquid crystal cell 23 and the polarizing plate (21 combined with optical compensation plate 22, column 3, lines 2-4), used in a liquid crystal display (column 1, lines 5-10).

4. Claims 2-3, 5-6, 14-15, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki as applied to claims 1, 4, 12-13, 16, 19-20, 22-23 above, and further in view of Oka (US 5,976,297).

Regarding claims 2-3, 5-6, Shiozaki teaches an optical compensation plate comprising an anti-cracking layer of a curable adhesive agent, as described above, but fails to teach that the curable adhesive agent is a moisture-curing resin-based adhesive, let alone that is a moisture-curing isocyanate resin-based adhesive, and fails to disclose either the microhardness of the anti-cracking layer or its thickness.

However, Oka teaches that a moisture-curing isocyanate resin-based adhesive (oligomer or prepolymer of a polyisocyanate compound, column 31, lines 4-8) is used for an optical component (antireflection sheet, column 31, line 1) for the purpose of forming a strong bond (column 30, lines 66-67) and of imparting sufficient hardness and durability to the optical component (column 31, line 1) which makes the moisture-cured

isocyanate resin-based adhesive layer an anti-cracking layer. Oka teaches that the thickness of the anti-cracking adhesive layer is from 0.5 to 20 μm (column 27, lines 7-10), which overlaps the claimed range of 0.1 to 20 μm. Oka fails to teach the microhardness of the anti-cracking adhesive layer.

However, Oka teaches that the anti-cracking adhesive layer imparts sufficient hardness and durability to the optical component (column 31, line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have optimized the process of forming the anti-cracking adhesive layer of Oka, to obtain a microhardness of from 0.1 to 0.5 GPa, in order to impart the desired hardness and durability to the optical component, as taught by Oka.

Oka teaches that moisture-curing isocyanate resin-based adhesive (oligomer or prepolymer of a polyisocyanate compound, column 31, lines 4-8) is used for an optical component (antireflection sheet, column 31, line 1) for the purpose of forming a strong bond (column 30, lines 66-67) and of imparting sufficient hardness and durability to the optical component (column 31, line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a moisture-curing isocyanate resin-based adhesive as the curable adhesive for the anti-cracking layer in the optical component of Shiozaki, in order to provide the desired bond strength, hardness and durability, as taught by Oka.

Regarding claims 14-15, Shiozaki teaches a polarizing plate comprising a polarizer, a transparent protective layer and the optical compensation plate, wherein the

polarizer and the optical compensation plate are laminated together via the transparent protective layer, as discussed above. Shiozaki fails to teach a pressure-sensitive layer laminated on the surface of the optical compensation layer opposing to the surface on which the anti-cracking layer is laminated.

However, Oka teaches a polarizing plate wherein a pressure-sensitive adhesive may be applied to a surface of the optical component (antireflection sheet, column 31, lines 23-26) to adhere it to another optical component such as a polarizer, for the purpose of forming a polarizing plate (column 31, lines 22-28). Oka teaches that a material of the pressure-sensitive adhesive layer is at least one resin-based pressure-sensitive adhesive selected from the group consisting of a rubber-based resin, a vinyl-based resin (column 17, lines 30-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided a pressure-sensitive adhesive selected from the group consisting of a rubber-based resin, a vinyl-based resin, on the surface of the optical compensation layer opposing to the surface on which the anti-cracking layer is laminated, to adhere the optical compensation plate to the polarizer of Shiozaki, in order to obtain a polarizing plate, as taught by Oka.

Regarding claims 17-18, Shiozaki fails to teach that a pressure-sensitive adhesive layer and a liner are further disposed in this order on the surface of the anti-cracking layer on which the polarizer is not laminated, or that a combination of a liner on the surface of a pressure-sensitive adhesive layer, is laminated on the surface of the

optical compensation layer opposing to the surface on which the anti-cracking layer is laminated.

However, Oka teaches that a pressure-sensitive adhesive may be applied to a surface of the optical component (antireflection sheet, column 31, lines 23-26) to adhere it to another optical component (column 31, lines 22-28). Furthermore, Oka teaches that a liner (release film, column 38, line 31) is disposed on the surface of optical component for the purpose of protecting the surface of the optical component before it is adhered to another optical component (transfer, column 38, lines 35-37).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have disposed a pressure-sensitive adhesive layer and then a liner in this order, on the surface of the anti-cracking layer on which the polarizer is not laminated, or on the surface of the optical compensation layer opposing to the surface on which the anti-cracking layer is laminated, in the polarizing plate of Shiozaki, in order to provide protection for the surface of the optical component before it is adhered to another optical component, as taught by Oka.

5. Claims 7-9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki as applied to claims 1, 4, 12-13, 16, 19-20, 22-23 above, and further in view of Broer (US 5,506,704).

Shiozaki has been discussed above, and further teaches that the constituent molecules in the compensating layer of the optical compensation plate have a helical structure (column 26, lines 25-32), but fails to teach that the constituent molecules are aligned in the form of a cholesteric structure, let alone that they are non-liquid crystal

polymers, or liquid crystal polymers, and fails to specify the thickness of the compensating layer.

However, Broer teaches that the pitch of the molecular helix is provided by constituent molecules aligned in the form of a cholesteric structure (cholesteric polymers, column 5, lines 12-15). Broer teaches that the constituent molecules of the cholesteric layer can be non-liquid crystal polymers, as defined by Applicant, wherein the non-liquid crystal polymer is a polymer obtained by polymerizing or cross-linking liquid crystal monomers (three dimensional network, column 5, lines 43-50) which are aligned in the form of a cholesteric structure (column 4, lines 32-40), and that the constituent molecules of the cholesteric layer can also be liquid crystal polymers (polymerized liquid crystalline material having a cholesteric order, column 6, lines 41-45). Broer teaches that the thickness of the compensating layer typically ranges from 3 to 40 μm (optically active layer, column 9, lines 2-5), which overlaps the claimed range of 0.5 to 10 μm.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have aligned the constituent molecules of the compensating layer of Shiozaki, in the form of a cholesteric structure, in order to provide the desired pitch of helical structure, wherein the constituent molecules are non-liquid crystal polymers or liquid crystal polymers, as taught by Broer.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki in view of Broer, as applied to claims 1, 4, 7-9, 11-13, 16, 19-20, 22-23 above, and further in view of in view of Ohnishi (US 5,730,899).

Shiozaki in view of Broer, teaches an optical compensation plate wherein the optical compensation layer is a cholesteric layer whose constituent molecules are non-liquid crystal polymers, obtained by polymerizing or cross-linking liquid crystal monomers which are aligned in the form of a cholesteric structure, as discussed above. In addition, Shiozaki teaches that the constituent molecules in the compensating layer of the optical compensation plate have a helical structure (column 26, lines 25-32). Shiozaki in view of Broer, fails to teach that the constituent molecules are aligned in the form of a cholesteric structure, or that the helical pitch of a cholesteric alignment ranges from 0.01 to 0.25 μm.

However, Ohnishi teaches that constituent molecules aligned in the form of a cholesteric structure have a helical structure (column 5, lines 28-34), and that the helical pitch of the cholesteric alignment of the compensating layer ((anisotropic film, column 19, lines 27-30) should be 0.3 μm or less (column 19, lines 27-30), which encompassed the claimed range of from 0.01 to 0.25 μm, to avoid selective reflection of visible light (column 19, lines 30-35) for the purpose of compensating for the viewing angle dependence of display contrast or color due to refractive index anisotropy of the liquid crystal molecules in the liquid crystal cell, over a wide temperature range (column 19, lines 36-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a helical pitch within the range of 0.01 to 0.25 μm, as the helical pitch of the cholesteric alignment of the constituent molecules, in the compensating layer of Shiozaki in view of Broer, in order to provide the desired

compensation for the viewing angle dependence of display contrast or color due to refractive index anisotropy of the liquid crystal molecules in the liquid crystal cell, over a wide temperature range, as taught by Ohnishi.

7. Claims 21, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki as applied to claims 1, 4, 12-13, 16, 19-20, 22-23 above, and further in view of Sarma (US 5,717,474).

Shiozaki teaches an liquid crystal display as described above, but fails to teach alternate image display apparatus such as an electroluminescence display, a plasma display, or a field emission display.

However, Sarma teaches that electroluminescence, plasma and field emission displays are being developed as image display apparatus alternate to liquid crystal display apparatus, for the purpose of providing superior viewing angle in the vertical direction (column 1, lines 15-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the optical compensation plate of Shiozaki in electroluminescence, plasma and field emission displays in place of the liquid crystal display of Shiozaki, in order to provide an alternate image display apparatus with superior viewing angle in the vertical direction, as taught by Sarma.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon
Sow-Fun Hon
03/07/06

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772
3/6/06